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Azure

Jerry W. Norris

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## About the cover

Jerry W. Norris is known as the "Dotman" because he paints in the style of pointillism. At the time *Azure* was submitted for consideration, Mr. Norris was an animal groomer at a veterinary clinic in Independence, Mo. where his wife is currently a veterinary technician.

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# Special Report

## Follow-up study of owner attitudes toward home care of paraplegic dogs

Michael Bauer, DVM; Nita Glickman, MS, MPH; Larry Glickman, MPH, VMD;  
James Toombs, DVM, MS; Scott Golden; Cindy Skowronek

**Summary:** A questionnaire was mailed to 30 owners of paraplegic dogs who had been caring for their dogs at home for 3 to 72 months. It was designed to collect information on demographic variables, duration of ownership and paralysis, age of the pet, pet/owner relationship, owner expectations and perceptions of the pet's quality of life, problems the pet experienced, effect that maintaining a paralyzed pet had on the owners' quality of life, and whether use of a cart was beneficial.

Significant correlation was found between prior expectations that the pet would lead a high-quality life and perception that the pet, in fact, had a high quality of life during paralysis ( $r^2 = 0.61$ ,  $P = 0.01$ ). Owners who had anticipated that extra work would be necessary to care for their paraplegic dog had a more positive attitude toward home care ( $r^2 = 0.55$ ,  $P = 0.03$ ).

Overall, owners involved in the study were satisfied with all aspects of maintaining paraplegic dogs at home. Our findings support the feasibility of dedicated owners successfully maintaining small (average body weight, 9 kg) paraplegic dogs at home for extended periods.

**P**araplegia attributable to intervertebral disk herniation or other forms of spinal cord trauma is a common problem in dogs.<sup>1</sup> Dogs with permanent paralysis or those convalescing may be maintained at home for extended periods despite complications, including urinary tract infection, decubital ulcers, and fecal and urinary incontinence. However, such pets may lead what is perceived to be a good-quality life by their owners. Furthermore, adverse effects on the owners' own

From the Center for Paralysis Research (Bauer, Toombs, Golden, Skowronek), Department of Veterinary Clinical Sciences (Bauer, Toombs), Center for Applied Ethology and Human-Animal Interaction (N. Glickman) and Department of Veterinary Pathology (L. Glickman), School of Veterinary Medicine, Purdue University, West Lafayette, IN 47907-7403.

Dr. Bauer's present address is Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO 80523.

\*K-9 Cart, K-9 Cart Co, Berwyn, Pa.



Figure 1—The K-9 cart used to help paraplegic dogs ambulate.

quality of life may be minimal and "worth the effort involved." The purpose of the study reported here was to evaluate results of a questionnaire mailed to individuals who owned and cared for a paraplegic dog at home for a minimum of 3 months.

### Materials and Methods

**Participants**—All dog owners in this study were participants in a Purdue University School of Veterinary Medicine (PUSVM), Center for Paralysis Research (CPR), prospective clinical trial investigating various treatment modalities for complete hind-limb paralysis. The CPR program accepted deep pain response-negative, paraplegic dogs with focal traumatic lesions or disk herniations between the second thoracic and fourth lumbar vertebrae. All dogs had been examined previously by a referring veterinarian. The primary treatment modalities in the CPR program involved standard medical and surgical treatment, as well as surgical implantation of an oscillating field electrical stimulator in hopes of initiating axonal regeneration. Owners were given the details of the program, and were told that, despite our efforts,

prognosis for recovery was poor but not hopeless. Dogs were accepted into the CPR project with the understanding that the program would pay all medical expenses if the owner agreed to maintain their pet at home for at least 6 months, even if treatment was unsuccessful. All dogs were kept mainly inside, although this was not a criterion for inclusion in the CPR study. Owners were supplied with a cart<sup>a</sup> to aid in their dog's ambulation (Fig 1). The cart was designed to provide wheels under the caudal portion of the dog. Owners were encouraged to use the cart while supervision was possible and simply confine their pets during nonsupervised periods.

All participants in the CPR program who had owned and maintained a paraplegic dog weighing < 15 kg for at least a 3-month duration ( $n = 30$  individuals) were mailed questionnaires. Questions were personalized to include the specific pet's name and gender, rather than using a generic type format. Questions and statements were designed to measure attitudes on a 5-point Likert scale: agree strongly, agree, neutral, disagree, or disagree strongly (Appendix).<sup>2</sup>

**Interpretation of questionnaire**—Selected questions were chosen to generate composite scores for each respondent regarding the pet-owner relationship, the owners' perceptions about the pet's quality of life, the pet's problems, and the work required to maintain the pet. For example, relationship score was established by use of questions 4–8, with higher score indicating increased "closeness" between owner and pet (maximal score = 25). The pet/owner relationship questions were adopted from a previous study on pet-owner attachment.<sup>3</sup> Perception score was generated by use of questions 11, 12, and 23–27, with higher score indicating favorable perceptions regarding the pet's quality of life (maximal score = 35). Pet problem score was determined by questions 18, 26, 28, and 29, with higher score indicating increased problems experienced by the pet (maximal score = 20). Work score was established by use of questions 13 and 17, with higher score indicating increased amount of work necessary by the owner to maintain their pet (maximal score = 10).

**Statistical methods**—Fifteen hypotheses were generated regarding associations between the age of the pet and the four composite scores (pet/owner relationship, owner perceptions about the pet's quality of life, pet's problems, and work required to maintain the pet), and associations between the composite scores themselves. These hypotheses were tested, using Pearson's correlation coefficients.<sup>4</sup>

A  $t$  test was used to compare duration of dog ownership (< 2 years vs  $\geq 2$  years) with the four composite scores.<sup>4</sup> The  $t$  tests were also used to compare the four composite scores with the fol-

lowing demographic variables: live in city vs country; live in house vs apartment; whether or not the family had children < 18 years old living at home; whether or not the house had a large yard; gender of the pet's primary caretaker; and whether or not the primary caretaker worked outside the home.

Analysis of variance was used to determine whether association existed between owner age (< 30, 30 to 49, and  $\geq 50$  years) and composite scores.<sup>4</sup> A  $P$  value of < 0.05 was considered statistically significant. When multiple comparisons were made, the Bonferroni method was used to determine the significance level of the  $P$  value.

## Results

Of the 30 questionnaires mailed to owners, 27 (90%) questionnaires were completed and returned. Demographic characteristics of the primary caretakers were determined (Table 1). Information regarding age of the dog and duration of ownership, pet/owner relationship, owner expectations and perception of the pet's well-being, and benefit of a cart were tabulated (Appendix). Composite scores with regard to pet/owner relationship, the owner perceptions of their pet's quality of life, pet's problems, and the work required to maintain the pet also were categorized (Table 2).

**Demographic data**—On the basis of demographic characteristics, statistically significant differences were not evident between owner relationship with their dog, owner perception of their dog's well-being, dog's problems, work involved with maintaining the pet, or owner's own quality of life.

**Duration of ownership and age of the dog**—Age of the dog at the onset of paralysis ranged from 3 to 102 months, with median of 52 months. The number of months dogs were owned prior to paralysis ranged from 0 to 100 months, with median of 48 months. One dog had been adopted after paralysis; this was recorded as 0 months of ownership prior to paralysis. Duration of ownership after paralysis ranged from 3 to 72 months, with median of 20 months. Statistically significant correlations were not found when age of the dogs and duration of ownership before and after paralysis were compared with pet/owner relationship, owner perceptions of the dog's quality of life, problems the dogs experienced, work involved with maintaining the dogs, and whether the owner's own quality of life was affected.

Relationship scores ranged from 13 to 25 ( $\bar{X} = 20$ ,  $SD 3.0$ ). Ninety-six percent of the owners agreed strongly or agreed that they talked to their pet as they would to a child. All agreed strongly or agreed they were aware of their pet's moods, and 85% believed the pet was aware of the owner's moods.

**Expectations**—Sixty-one percent agreed strongly or agreed that they expected their pet would lead

Table 1—Demographic characteristics of primary caretakers of paralyzed pets

| Variable                     | Category                      | Percentage of owners |
|------------------------------|-------------------------------|----------------------|
| Age                          | 20 to 29                      | 21                   |
|                              | 30 to 39                      | 18                   |
|                              | 40 to 49                      | 26                   |
|                              | 50 to 59                      | 16                   |
|                              | 60 +                          | 21                   |
| Gender                       | F                             | 68                   |
|                              | M                             | 16                   |
|                              | Both were primary caretakers  | 16                   |
| Work outside the home        | Yes                           | 63                   |
|                              | No                            | 37                   |
| Child < 18 years old at home | Yes                           | 16                   |
|                              | No                            | 84                   |
| Type of residence            | House                         | 90                   |
|                              | Apartment                     | 10                   |
| Marital status               | Married/living with companion | 74                   |
|                              | Live alone                    | 26                   |
| Area of residence            | City                          | 88                   |
|                              | Rural                         | 32                   |
| Residence has large yard     | Yes                           | 68                   |
|                              | No                            | 32                   |

Table 2—Scores generated regarding pet-owner relationship, owner perceptions about the pet's quality of life, pet's problems, and work required. Higher scores correspond to a closer relationship, better perception about the pet's quality of life, more pet problems, and more work, respectively

| Variable                                  | Questions      | Maximal possible score | Range    | Mean | Standard deviation |
|-------------------------------------------|----------------|------------------------|----------|------|--------------------|
| Relationship score                        | 4-8            | 25                     | 13 to 25 | 20   | 3.0                |
| Perception of pet's quality of life score | 11, 12, 23-27  | 35                     | 20 to 35 | 27.7 | 4.2                |
| Pet problem score                         | 18, 26, 28, 29 | 20                     | 4 to 15  | 9.6  | 3.2                |
| Work score                                | 13, 17         | 10                     | 2 to 8   | 3.4  | 1.6                |

a good-quality life after paralysis. Forty percent agreed strongly or agreed that they expected their pet would recover. All respondents agreed strongly or agreed that they expected increased work to maintain their pet should it remain paralyzed. Statistically significant correlation existed ( $r^2 = 0.61$ ;  $P = 0.01$ ) between expectations that the pet would lead a high-quality life and the perception that the pet did lead a high-quality life during paralysis. Statistically significant correlation ( $r^2 = 0.55$ ;  $P = 0.00$ ) was also found between owners' anticipation that extra work would be necessary to care for their paraplegic dog and the perception that their pet was leading a high-quality life.

**Owner perceptions of the pet's quality of life**—The pet's quality of life was assessed by comparing owner responses to questions about their perceptions of the pet's quality of life and pet problems, such as decubital ulcers and urinary tract infection (UTI). A perception score was generated as previously described. Higher perception score indicated more favorable outlook regarding the pet's well-being.

Scores ranged from 20 to 35 ( $\bar{X} = 27.69 \pm 4.2$ ). All owners disagreed or disagreed strongly that their pet was leading a poor-quality life. Eighty-five percent believed that their pet's attitude was as good as before surgery, and 74% believed that their pet did not realize it was paralyzed.

**Pet problems**—The frequency of problems experienced by paralyzed dogs was evaluated, using responses to questions related to UTI, decubital ulcers, and urination and defecation in the house. Ninety-four percent of the respondents said UTI were not a problem or were infrequent ( $<1/\text{mo}$ ). Seven percent of the owners agreed strongly and 19% agreed that decubital ulcers were a problem. Seventy percent of owners said urination in the house and 63% said defecation in the house was observed once a week or less. Pet problem score ranged from 4 to 15 ( $\bar{X} = 9.6 \pm 3.2$ ).

**Owner's quality of life**—Work scores ranged from 2 to 8 ( $\bar{X} = 3.44 \pm 1.8$ ). Eighty-nine percent of the owners disagreed or disagreed strongly that the work was excessive, and 85% disagreed or disagreed strongly that the work lowered their own quality of life. Ninety-four percent agreed or agreed strongly that the work was worth the effort, and 37% agreed strongly or agreed that the work brought their family closer together. Significant correlation ( $r^3 = 0.89$ ;  $P = 0.01$ ) was found between owners with higher work scores and those who believed their own quality of life was lowered by maintaining a paralyzed pet.

**Cart use**—Most owners believed that use of a cart was important for maintaining their pet. Eighty-two percent agreed strongly or agreed the cart was beneficial, and 92% agreed strongly or agreed that they would recommend a cart to other owners who decided to maintain a paralyzed pet.

Overall, owners were satisfied with their decision to maintain their pet as a paraplegic. Eighty-five percent agreed strongly or agreed that if they had the decision to make over again they would choose to care for their pet rather than choose euthanasia.

## Discussion

Our study dealt with a select group of clients admitting their dogs to a referral center. Undoubtedly, numerous potential participants were eliminated prior to reaching Purdue University. Furthermore, some were eliminated or declined admission into the CPR program after discussing the project with a clinician at Purdue. The final group of owners admitting their dog into the CPR program were dedicated, informed owners who voluntarily made the decision to maintain their pet as a paraplegic.

The percentage of responses was higher than might be expected from a written questionnaire returned by mail. The most logical explanation is

the bond established between Purdue's paralysis research team and the owner. Another factor may have been the personalized format of the questionnaire. This format made statements and asked questions by using the pet's name and gender instead of "your dog" and "it."

We anticipated that demographic factors would significantly influence questionnaire responses. For example, we believed the ideal situation would involve someone without children, who did not work, and who lived in a house with a large yard. However, significant differences were not found between any aspect of our study and demographic characteristics. These results indicate that home care of small paraplegic dogs over extended periods may be feasible regardless of the age or gender of the owner or the physical setting in which the client and dog live. This may reflect the desire, commitment, and caring of the clients of this study. However, if we had included larger dogs and a larger number of owners, demographic characteristics may have become significant.

Age of the dog and duration of ownership before and after paralysis did not have significant effect on owners' responses. It seems reasonable to speculate that clients who had owned their dogs for longer periods would have developed a closer relationship. However, on the basis of pet/owner relationship questions, all owners in this study had a strong attachment to their dogs, regardless of duration of ownership. This may reflect the nature of the clients included in our study. Such individuals may have a caring attitude toward animals, especially those with physical disabilities, which allowed development of a close relationship independent of duration of ownership.

The minimal duration that owners had cared for their paraplegic dogs before being included in this study was arbitrarily set at 3 months. It seems possible that as more time elapsed, an owner might become discouraged or overwhelmed while taking care of a paraplegic dog. We did not find evidence for this speculation in our study. In fact, most owners developed a closer bond with their dog after their dog was paralyzed. Whether or not home care of paraplegic dogs for several years' duration would lead to owner frustrations and discouragement is difficult to say, because the number of such caretakers in our study was not large enough for statistical analysis.

We included questions with regard to the pet-owner relationship to determine whether various degrees of "closeness" influenced owner perceptions about home care of paraplegic dogs. However, most clients in our study felt extremely close to their dog, as indicated by the fact that 96% of them talked to their dog as though it were a child. On the basis of selection criteria and procedures for admitting a dog into the CPR program, it was not surprising that most owners in this study had an

emotional attachment or close relationship with their dog. The relationship score did not have significant effect on other composite scores (ie, owner's perception, pet problem, and work scores). If a more generalized population of pet owners, with wider distribution of relationship responses and scores had been involved, it is more likely that the pet/owner relationship might have directly influenced responses in other categories.

Owners who were optimistic about their dog's quality of life and those who anticipated extra work responded most favorably regarding their perceptions of the dogs' well-being after paralysis. This indicates that owner expectations may be as important as the dogs' actual existence after paralysis. Furthermore, the fact that owners who anticipated more work responded more favorably illustrates the importance of veterinarian-client communication regarding the daily tasks necessary for home care of paraplegic dogs. Owner expectations may be useful in helping owners decide whether to euthanatize or keep a paraplegic pet.

Owner perceptions of their pet's quality of life was overwhelmingly positive. In fact, most believed their pet's quality of life, activity level, and attitude were as good as they were before paralysis. No owner believed that their pet was leading a poor-quality life. We believe such responses are valid, and are accurate reflections of the pet's well-being. Many of these owners had cared for their dogs for extended periods and, through such dedicated caretaking, had closely observed their dog's behavior. Reasons for these positive responses may be attributable to numerous factors. Again, a select population of clients participated in our study, most of which were closely attached to their dogs. Furthermore, prior to entering the CPR study, we informed clients that their dogs could lead a good-quality life even if treatment was unsuccessful. We also clearly and completely explained the daily maintenance their paraplegic dogs would require. Our optimistic approach may have influenced owner expectations and decisions to maintain their dog. However, owners were encouraged to give careful consideration to the decision at hand because they were committing to a 6-month contract. In no way, do we believe we pressured any owners into entering the CPR study.

Owners that entered the CPR study were offered continual support, advice, and medical assistance. We frequently adjusted carts, treated UTI, explained how to protect abraded areas, and suggested how diapers could be modified to control urinary incontinence. Our study illustrates the importance of owner attitude and anticipation of work required. We believe veterinarians should have a vital, yet unbiased role in advising and supporting clients.

Medical disorders secondary to paralysis are common in human beings.<sup>5</sup> In fact, UTI leading to

major medical problems are common in people with quadriplegia or paraplegia.<sup>5</sup> We anticipated a higher frequency of secondary problems in our study than was found. Most owners said UTI were not a problem. It is possible and even probable that our figures underestimated UTI frequency because owners, not veterinarians, were responding to the questionnaire. However, owners involved in this study were well informed and educated with regard to clinical signs of UTI, and became experienced at making such observations. Furthermore, dogs in this study did not develop any life-threatening problems that would be expected if UTI were not brought to the attention of a veterinarian and treated. Properly trained owners can become proficient at expressing the dog's urinary bladder, which may explain the low number of related problems in our study. Furthermore, some paraplegic dogs in this study developed some form of nonassisted micturition. Currently, the CPR program has followed a total of 78 dogs, 30 of which were included in this study; of those dogs, only one developed a life-threatening urinary tract-related problem.

Twenty-six percent of the owners believed that decubital ulcers were a problem. In most instances, the ulcers developed from the cart rubbing the inner portion of the dog's thighs or on the dorsum of the metatarsal or phalangeal areas because of dragging. Most of these problems were successfully managed by cart adjustments or by protecting the ulcerated areas with padding (ie, gauze and tape, cotton socks). Two dogs developed ulcers that required surgical debridement. In both instances, the wounds healed successfully by second intention. No dog required any type of reconstructive surgery. No owner reported additional problems when asked for additional comments about their pet.

Euthanasia is almost certainly the most common cause of death in paraplegic pets. The decision to euthanize a paraplegic pet is undoubtedly related to numerous factors. We believe that the anticipation or occurrence of soilage attributable to urination or defecation in the home would probably have a major role in the euthanasia decision. Therefore, we included these problems with "pet problems." Most owners reported such problems infrequently. These problems were often managed by using a modified diaper. Urination was more satisfactorily managed this way than was defecation.

The tolerance for fecal and urinary incontinence undoubtedly varies among owners. However, only one owner in this study euthanized their dog. In this case, fecal incontinence along with the extra work needed to care for the dog, led to the decision for euthanasia. The surprisingly low number of owners who found urinary or fecal incontinence to be a problem may have been affected by two factors. As previously mentioned, some dogs resumed some form of nonassisted micturi-

tion. Another important point is that all dogs in our study had upper motor neuron injuries (ie, the lumbosacral plexus was intact). Therefore, most dogs had problems with the emptying, not the storage phase of micturition, and anal tone was present. Animals with injuries resulting in constant urine dribbling and flaccid anal tone may represent a greater problem.

Caring for a paraplegic dog entails additional work and problems that may affect the owner's life style or quality of life. We tried to examine this aspect of maintaining a paralyzed pet by generating a work score and by asking owners to respond to questions and statements pertaining to their own quality of life. Our results indicate that caring for a paraplegic pet may have little or no adverse effect on the owner's quality of life. In fact, 37% of the respondents believed such efforts had brought their family closer together. The select clients who participated in our study probably had an effect on the overall positive nature of these responses. The work required to maintain a paraplegic dog is certainly not suitable to all pet owners. Once again, veterinarians should explain to clients the effort required to maintain such dogs. Through realistic explanations, owners can be aided in making the critical decision to maintain or euthanize their dogs.

In our experience, the use of a cart has allowed paraplegic animals to ambulate well. Small dogs, as in this study, quickly learn and adjust to the use of wheels instead of hind limbs. Our beliefs were reconfirmed by this study. By far, most owners believed use of a cart had an important role in maintaining their pet.

Results of this study support the belief that small paraplegic dogs lead a good-quality life if given appropriate home care. The most significant factor influencing owner perceptions of dog's well-being is initial owner expectations. This emphasizes the veterinarians' role in client communication. Owners of small paraplegic dogs should be made aware of these findings and informed of the home care required. Most informed owners who decide to provide home care for their paraplegic dogs for extended periods will be pleased with their dog's quality of life, as well as changes in their own life.

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## Appendix

Questions asked and responses obtained from the questionnaire

### Paralysis Questionnaire

|                                              |                    |
|----------------------------------------------|--------------------|
|                                              | Mean $\pm$ SD      |
| 1) Age of "Name" at time of paralysis.       | 52.5 $\pm$ 20.3 mo |
| 2) Duration of ownership prior to paralysis. | 48.0 $\pm$ 25.3 mo |
| 3) Duration of ownership since paralysis.    | 20.3 $\pm$ 16.0 mo |

### Your relationship with (name)

| QUESTION OR STATEMENT                                                                        | Agree strongly (%) | Agree (%) | Neutral (%) | Disagree (%) | Disagree strongly (%) |
|----------------------------------------------------------------------------------------------|--------------------|-----------|-------------|--------------|-----------------------|
| 4) I talk to "Name" as I would to a child.                                                   | 51.9               | 44.4      | 00.0        | 3.7          | 00.0                  |
| 5) I confide in "Name" (talk to "gender" about problems or events that are important to me). | 22.2               | 25.9      | 33.3        | 18.5         | 00.0                  |
| 6) I think that I am aware of "Name's" moods.                                                | 48.1               | 51.9      | 00.0        | 00.0         | 00.0                  |
| 7) I think "Name" is aware of my moods.                                                      | 29.6               | 55.6      | 14.8        | 00.0         | 00.0                  |
| 8) I feel closer to "Name" than to my friends or family members.                             | 11.1               | 44.4      | 22.2        | 18.5         | 3.7                   |

### Your expectations

| QUESTION OR STATEMENT                                                                                                  | Agree strongly (%) | Agree (%) | Neutral (%) | Disagree (%) | Disagree strongly (%) |
|------------------------------------------------------------------------------------------------------------------------|--------------------|-----------|-------------|--------------|-----------------------|
| 9) Prior to entering the CPR project I was optimistic "Name" would lead a quality life if "gender" remained paralyzed. | 22.2               | 37.0      | 14.8        | 14.8         | 11.1                  |
| 10) I expected that an increased amount of work would be required to maintain "Name" as a paralyzed pet.               | 44.4               | 55.6      | 00.0        | 00.0         | 00.0                  |

### Your experiences and feelings since surgery

| QUESTION OR STATEMENT                                                                                         | Agree strongly (%) | Agree (%) | Neutral (%) | Disagree (%) | Disagree strongly (%) | Not apply (%) |
|---------------------------------------------------------------------------------------------------------------|--------------------|-----------|-------------|--------------|-----------------------|---------------|
| 11) "Name" is leading an unacceptably poor quality of life.                                                   | 00.0               | 00.0      | 00.0        | 48.1         | 51.9                  |               |
| 12) "Name" 's quality of life is as good as before surgery.                                                   | 29.6               | 37.0      | 11.0        | 22.0         | 00.0                  |               |
| 13) The work associated with maintaining "Name" as a paralyzed pet is just too much for me and for my family. | 7.4                | 3.7       | 37.0        | 51.9         | 00.0                  |               |
| 14) The work associated with maintaining "Name" as a paralyzed pet is worth the effort.                       | 77.8               | 18.5      | 3.7         | 51.9         | 00.0                  |               |
| 15) The work associated with maintaining "Name" as a paralyzed pet has brought me closer to "gender".         | 56.0               | 32.0      | 2.0         | 00.0         | 00.0                  | 00.0          |
| 16) The work associated with maintaining "Name" as a paralyzed pet has brought our family closer together.    | 14.8               | 22.2      | 25.9        | 22.2         | 00.0                  | 14.8          |

|                                                                                                                                                           | Agree<br>strongly<br>(%)                                      | Agree<br>(%)                                     | Neutral<br>(%)                                       | Disagree<br>(%)                                                   | Disagree<br>strongly<br>(%) |                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------|-----------------------------|----------------------------------|
| 17) The work associated with maintaining "Name" as a paralyzed pet has altered my daily routine to the point where it has lowered my own quality of life. | 00.0                                                          | 7.4                                              | 7.4                                                  | 40.7                                                              | 44.4                        |                                  |
|                                                                                                                                                           | Very fre-<br>quently<br>(at least<br>2 times<br>a day)<br>(%) | Fre-<br>quently<br>(1 time<br>a day)<br>(%)      | Infre-<br>quently<br>(1 time<br>a week)<br>(%)       | Very fre-<br>quently<br>(less than<br>1 time<br>per week)<br>(%)  | Does<br>not<br>occur<br>(%) |                                  |
| 18) Soilage (due to urination) in the house occurs                                                                                                        | 14.8                                                          | 14.8                                             | 18.5                                                 | 18.5                                                              | 33.3                        |                                  |
| 19) Soilage (due to defecation) in the house occurs                                                                                                       | 22.2                                                          | 14.8                                             | 33.3                                                 | 14.8                                                              | 14.8                        |                                  |
| QUESTION OR STATEMENT                                                                                                                                     | Agree<br>strongly<br>(%)                                      | Agree<br>(%)                                     | Neutral<br>(%)                                       | Disagree<br>(%)                                                   | Disagree<br>strongly<br>(%) | Not a<br>strongly problem<br>(%) |
| 20) Soilage (due to urination) in the house has been effectively managed by using a modified diaper.                                                      | 14.8                                                          | 11.1                                             | 11.1                                                 | 7.4                                                               | 7.4                         | 48.1                             |
| 21) Soilage (due to defecation) in the house has been effectively managed by using a modified diaper.                                                     | 11.1                                                          | 7.4                                              | 14.8                                                 | 11.1                                                              | 11.1                        | 44.4                             |
|                                                                                                                                                           | Agree<br>strongly<br>(%)                                      | Agree<br>(%)                                     | Neutral<br>(%)                                       | Disagree<br>(%)                                                   | Disagree<br>strongly<br>(%) |                                  |
| 22) If I had to make the decision over again, I would maintain "Name" as a paralyzed pet instead of euthanatizing "gender."                               | 74.1                                                          | 14.8                                             | 3.7                                                  | 00.0                                                              | 7.4                         |                                  |
| QUESTION OR STATEMENT                                                                                                                                     | "Name"                                                        |                                                  |                                                      |                                                                   | Disagree<br>strongly<br>(%) |                                  |
|                                                                                                                                                           | Agree<br>strongly<br>(%)                                      | Agree<br>(%)                                     | Neutral<br>(%)                                       | Disagree<br>(%)                                                   | Disagree<br>strongly<br>(%) |                                  |
| 23) "Name" 's attitude appears greatly depressed compared to before paralysis.                                                                            | 00.0                                                          | 00.0                                             | 11.5                                                 | 42.3                                                              | 46.2                        |                                  |
| 24) "Name" 's attitude appears as good as before paralysis.                                                                                               | 38.5                                                          | 46.2                                             | 7.7                                                  | 7.7                                                               | 00.0                        |                                  |
| 25) "Name" 's activity level is greatly depressed compared to before paralysis.                                                                           | 3.8                                                           | 19.2                                             | 3.8                                                  | 57.7                                                              | 15.4                        |                                  |
| 26) "Name" 's activity level is as good as before paralysis.                                                                                              | 7.7                                                           | 50.0                                             | 11.5                                                 | 26.9                                                              | 3.8                         |                                  |
| 27) "Name" does not realize "gender" is handicapped.                                                                                                      | 37.0                                                          | 37.0                                             | 7.4                                                  | 18.5                                                              | 00.0                        |                                  |
| 28) Decubital ulcers (sores due to lack of feeling in the limbs) are a problem.                                                                           | 7.4                                                           | 18.5                                             | 14.8                                                 | 33.3                                                              | 25.9                        |                                  |
| QUESTION OR STATEMENT                                                                                                                                     | Constant-<br>ly (%)                                           | Frequently<br>(1-2 times<br>per<br>month)<br>(%) | Infre-<br>quently<br>(1 time<br>per<br>month)<br>(%) | Very infre-<br>quently<br>(less than<br>once per<br>month)<br>(%) | Not a<br>problem<br>(%)     |                                  |
| 29) Urinary tract infections (bloody urine) occur.                                                                                                        | 00.0                                                          | 00.0                                             | 7.4                                                  | 33.3                                                              | 59.3                        |                                  |

| QUESTION OR STATEMENT                                                             | Cart                     |              |                |                 |                             |
|-----------------------------------------------------------------------------------|--------------------------|--------------|----------------|-----------------|-----------------------------|
|                                                                                   | Agree<br>strongly<br>(%) | Agree<br>(%) | Neutral<br>(%) | Disagree<br>(%) | Disagree<br>strongly<br>(%) |
| 30) The cart is definitely a benefit to "Name."                                   | 52.2                     | 3.04         | 8.7            | 8.7             | 00.0                        |
| 31) "Name"'s adjustment to life in a cart was easy and quick.                     | 47.8                     | 26.1         | 4.3            | 21.7            | 00.0                        |
| 32) Without the cart maintaining "Name" as a paralyzed pet would be unacceptable. | 17.4                     | 8.7          | 13.0           | 43.5            | 17.4                        |

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